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AEROFLEX COLORADO SPRINGS, INC.
9

10 UNITED STATES DISTRICT COURT
11 NORTHERN DISTRICT OF CALIFORNIA
12 SAN FRANCISCO DIVISION
13

14 RICOH COMPANY, LTD.,

15 Plaintiff,

16 vs.

17 AEROFLEX INCORPORATED, AMI
SEMICONDUCTOR, INC., MATROX
18 ELECTRONIC SYSTEMS LTD., MATROX
GRAPHICS INC., MATROX
INTERNATIONAL CORP., MATROX TECH,
19 INC., AND AEROFLEX COLORADO
SPRINGS, INC.
20

21 Defendants.

22 SYNOPSYS, INC.,

23 Plaintiff,

24 vs.

25 RICOH COMPANY, LTD.,

26 Defendant.

Case No. C03-4669 MJJ (EMC)

Case No. C03-2289 MJJ (EMC)

**REPLY MEMORANDUM IN SUPPORT OF
MOTION FOR SUMMARY JUDGMENT OF
NON-INFRINGEMENT (RTL)**

[SUMMARY JUDGMENT MOTION NO. 1]

Date: September 26, 2006
Time: 9:30 a.m.
Courtroom: 11, 19th Floor
Judge: Martin J. Jenkins

27 **FILED UNDER SEAL PURSUANT TO PROTECTIVE ORDER**
28 **REDACTED PUBLIC VERSION**

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I. INTRODUCTION

Ricoh's Opposition to Synopsys' and Defendants' Motion for summary judgment on the issue of whether or not the inputs at issue in this case are "architecture independent" is primarily comprised of arguments lifted verbatim or almost verbatim from its Claim Construction briefs. Here, however, Ricoh disingenuously portrays its claim construction arguments as "factual disputes." In each case, the arguments Ricoh makes (and those arguments made by Dr. Papaefthymiou, Ricoh's hired expert who has never even used Design Compiler or looked at a whole Customer Defendant design)¹ have already been rejected by this Court and should also be rejected here.

Moreover, as explained below, not a single disputed fact is raised by Ricoh's motion. For the reasons set forth in detail below, this Motion should be granted.

II. THERE ARE NO FACTUAL DISPUTES

Ricoh's alleged disputed "factual" issues are entirely disingenuous wolves in sheep's clothing. The alleged factual issues, and in particular the dispositive issue, alleged factual issue number 1, either consist of an exact re-hash of the legal arguments Ricoh made during claim construction that were already definitively rejected by this Court, or depend on the outcome of an alleged factual issue that is really a legal issue that has already been rejected by this Court, or consist of one of Ricoh's straw man arguments that are quite prevalent throughout its oppositions to this Motion.

A. Alleged Factual Issue 1 Is Simply An Already Rejected Rehash of Ricoh's Claim Construction Arguments

Ricoh's first alleged factual dispute is "What the Darringer '435 Patent teaches about the RTL input to the system disclosed therein." Opposition at 4:17. Ricoh's position is that "Darringer RTL" is a structural level, hardware architecture dependent input that is a shorthand (or straightforward)

¹ On August 11, 2006, Dr. Papaefthymiou testified he has never used Design Compiler; has no idea what inputs Design Compiler requests; had not seen a single Customer Defendant design 11 days prior to his deposition; had never seen the HDL Operators Search Report that formed the basis for his opinion that evidenced all the actions and conditions; had never "read" any of the Customer Defendant transcripts that Ricoh had insisted on; admits that he has no opinion if the Court intended to exclude all RTL; and concedes that his methodology does not even work if applied to the relevant inquiry. Brothers Decl., Ex. 40 (Papaefthymiou) at 18:23-19:5, 66:17-22, 75:6-24; 99:22-100:15, 124:18-125:3, 171:14-172:3, 175:8-22; 180:23-181:15.

1 representation of logic.” Opposition at 5:1-2. This alleged factual issue consists of nothing more than
 2 a rehash of arguments already rejected by the Court in its claim construction. Indeed, in many cases,
 3 the arguments are verbatim – or near verbatim – arguments lifted from its Claim Construction briefs,
 4 and dropped into Ricoh’s Opposition in support of this alleged factual dispute as well as into Dr.
 5 Papaefthymiou’s declaration/expert report. A detailed comparison of the arguments makes this point
 6 abundantly clear.

7 In its opposition to this Motion, Ricoh makes the following assertions in support of its alleged
 8 “factual dispute”:

9 “[T]he ‘432 patent describes architecture specific hardware components as part of
 10 structural (i.e., “logic”) level descriptions. (Brothers Dec. Ex. 26, ‘432 Patent at col.3,
 11 lines 59-67.” Opposition at 8:25-27.

12 “The Darringer ‘435 Patent teaches that its RTL is a “register-transfer, flowchart control
 13 language, of logic functions. (Brothers Dec. Ex.38, Darringer ‘435 Patent at col. 4, lines
 14 26-32; *see also Id.* at col. 5, lines 27-38) that undergoes a simple translation to AND/OR
 15 logic.” Opposition at 8:27-9:2.

16 “The ‘432 Patent file history is clear that the patent Applicants disclaimed hardware
 17 architecture dependent inputs, and that the patent Applicants considered the Darringer RTL
 18 to be such an input. (Brothers Dec. Ex. 39, ‘432 File History at 215, 235).” Opposition at
 19 9:5-7.

20 “During the ‘432 patent prosecution, the patent Applicants described the Darringer ‘435
 21 patent as teaching “hardware architecture dependent” inputs. (Brothers Dec. Ex. 28, Claim
 22 Construction Order at 11 (citing ‘432 Patent File History)).”² Opposition at 9:8-11.

23 “The register transfer level flowchart control language of Darringer is expressly described
 24 at col. 4, lines 26-32 as being a ‘register transfer, flowchart-control language, of logic
 25 functions to be implemented.” Opposition at 9:16-18.

26 “As taught in the ‘432 patent, logic level descriptions are structural level, architecture
 27 dependent descriptions. (Brothers Dec. Ex. 26, ‘432 Patent at col. 3, lines 59-67).”
 28 Opposition at 9:18-20.

“Thus, the ‘432 Patent prosecution history is also consistent with the position that the
 register transfer level, flowchart control input taught in Darringer is a structural, logic level
 input that is hardware architecture dependent. (Papaefthymiou Dec. ¶¶ 6, 21; Brothers Ex.
 39, ‘432 Patent File History at 215; Brothers Dec. Ex. 38, Darringer ‘435 Patent at col. 4

² This citation to the Court’s Claim Construction Order is a sleight of hand technique. Here, and elsewhere, Ricoh
 Opposition cites to the Court’s Claim Construction Order instead of underlying documents to try to create the impression
 that the Court sanctioned Ricoh’s arguments.

lines 26-32; *see also* Brothers Dec. Ex. 26, '432 Patent at col. 3 lines 59-67)." Opposition at 9:20-25.

"The Darringer '435 Patent. As described *supra*, the Darringer '435 Patent teaches a very specific system using a specific type of hardware architecture specific, register-transfer level, flowchart control input, of logic functions. (Brothers Dec. Ex. 38, Darringer '435 Patent at col. 5, lines 27-38, col. 4, lines 26-32; Brothers Dec. Ex. 7, Papaefthymiou Report at 13-15)." Opposition at 9:26-10:2.

"The Darringer Patent cannot be the basis of a clear disclaimer of information that it does not teach, and is certainly not a clear disclaimer of what it teaches away from. (*See PIN/NIP, Inc. v. Platte Chemical Co.*, 304 F.3d 1235, 1246 (Fed. Cir. 2002) (upholding patent claims because prior art reference taught away from the claimed invention); *SanDisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1286 (Fed. Cir. 2005) (reversing district court and finding that patentee's prosecution arguments were not a clear and unmistakable disclaimer of claim scope, and further finding that "[t]here is no 'clear and unmistakable' disclaimer if a prosecution argument is subject to more than one reasonable interpretation, one of which is consistent with a proffered meaning of the disputed term."); *id.* at 1287 (citing *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1332 (Fed. Cir. 2004)). This is additional evidence that Ricoh's disclaimer of the Darringer Patent did not disclaim higher order inputs such as those accused in this litigation." ³ Opposition at 11:3-14.

"The accused inputs are higher order arithmetic operations and other functions that the Darringer '435 patent does not teach as inputs to its system. (Brothers Dec. Ex. 7, Papaefthymiou Report at 13-15; *see also* Section IV.A.2, *supra*.) The accused inputs also do not undergo a straightforward translation to AND/OR logic." Opposition at 14:7-11.

Review of Ricoh's claim construction briefs makes quite clear that these are precisely the arguments Ricoh raised in the past – and which this Court already has rejected. In its Claim Construction briefs, Ricoh argued:

"During prosecution of the '432 patent, the patentee distinguished the invention over Darringer et al., asserting that the prior art used an input in the form of a register transfer language (RTL)-level flowchart." CC Opening Brief at 20:4-6.

"In contrast, Darringer et al. discloses using a structurally dependent RTL-level input to describe the behavior of the chip that is to be designed." CC Opening Brief at 20:12-13

"The 'RTL-level' used in Darringer et al. (as well as other prior art references cited in the '432 patent prosecution history) requires the input of a 'basic' or 'primitive Boolean'-type specification of register inputs, outputs, and timing between registers during a single clock cycle of the chip operation. *See, e.g.,* Darringer et al. at 5:27-35." CC Opening Brief at 20:14-17.

"Darringer et al. states that this type of RTL-level input is simply translated (in well-known manner) into an initial implementation of AND/OR logic by replacing input RTL

³ Ricoh's claim that these citations are "additional evidence" is ridiculous.

1 constructs with their equivalent AND/OR implementations. Id. at 5:35-47.” CC Opening
Brief at 20:17-20:20.

2
3 “. . . the fact that the specification can be so easily (and directly) translated into AND/OR
logic, indicates that the RTL-level input is a more basic “structural” input.” CC Opening
Brief at 20:22-23.

4
5 “Although [Darringer] can be used to describe the functional aspects of a desired chip, it
does not do so in a purely higher level functional manner that allows higher level concepts
6 such as addition, multiplication, etc. (or other manner that is free of basic Boolean
specifications).” CC Opening Brief at 20:24-26.

7
8 “The ‘structural’ ‘RTL-type’ description utilized in Darringer et al. therefore is not
‘architecture independent.’” CC Opening Brief at 20:26-21:2.

9
10 Ricoh notes that VHDL and Verilog are hardware description languages (“HDLs”) used in
the field of the invention that have been referred to as “RTL-type” languages. This type of
“RTL-level” is considered to be “functional RTL” as contrasted to the “basic” or
11 “primitive RTL” of Darringer et al.” CC Opening Brief at 21:3-8.

12 For any estoppel attributed to the patentee’s arguments distinguishing the claimed
invention over an “RTL”-type input description, it should be made clear that the patentee
13 used the term “RTL” in referring to Darringer et al. (and other prior art systems) that had
“basic” or “primitive RTL” type of inputs, which were not covered by the ‘432 patent
14 claims. The patentee did not disclaim coverage, however, of systems that used “functional
RTL” type of inputs (e.g., VHDL/Verilog based systems) that were architecture
15 independent.” CC Opening Brief at 21:9-14.

16 “No such “manifest exclusion” or “clear disavowal” of the scope proposed by
Defendants is present here. *Sunrace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298,
17 1306 (Fed. Cir. 2003) (“To be given effect, such a disclaimer must be ‘clear and
unmistakable.’”) (quoting *Omega*, 334 F.3d at 1325). Indeed, “[b]ecause the statements in
18 the prosecution history are subject to multiple reasonable interpretations, they do not
constitute a clear and unmistakable departure from the ordinary meaning of the [claim term
19 at issue].” *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1332 (Fed. Cir. 2004).
On this basis alone, Defendants’ proposal should be rejected.” CC Reply Brief at 6:5-11.

20
21 “Second, and even more egregiously, Defendants make an all-encompassing statement that
the patentee had added the term “architecture independent” to exclude all register-transfer
22 level (RTL)-type descriptions, as defined in the ‘435 patent, from the claimed invention,
selectively quoting the prosecution history. Def Br, at 20. Defendants intentionally omit
23 the actual point of distinction the patentee was making between its claimed invention and
the ‘435 patent. The patentee stated: “In order for a designer to utilize the [‘435 patent]
24 system, he/she must possess a sophisticated understanding of the complexities of the
circuit logic itself and therefore have the specialized expert knowledge of a highly skilled
25 VLSI design engineer.” April 1989 Amendment at 9. Contrary to Defendants’
allegation, the patentee did not disclaim all systems using any type of RTL, but only the
26 input system used in the ‘435 patent, which required knowledge of skilled VLSI design
engineers in order to provide the level of necessary structural detail. The patentee’s use of
27 the term “register-transfer level” or “RTL” was merely a shorthand reference used to
denote the “structural” RTL-type of input systems prevalent at the time for use in the ‘435
28 patent.” CC Reply Brief at 7:24-8:10.

1 “Indeed, the ‘435 patent discloses as an input a structural (“technology-oriented”) RTL that
 2 implies a definite structure, and hence, requires a specialized knowledge of hardware
 3 design not needed in other types of RTL (e.g., functional RTL). ‘435 patent at 5:35-38,
 4 Functional RTI, offers flexibility and adaptability to the designer by eliminating the need
 5 for knowledge of structure. For example, unlike in the ‘435 patent (and other prior art
 6 cited in the file history), functional RTL allows for the use of operators (e.g.,
 7 multiplication, division, etc.) that do not implicate definite structure by the mere input
 8 description.” CC Reply Brief at 8:11-16.

9 “The requirement in the ‘435 patent of specifying the individual inputs, outputs, and
 10 registers for a single clock cycle, together with the fact that the specification can be so
 11 easily (and directly) translated into AND/OR logic, indicates that the RTL-level input is a
 12 more basic “structural” input. The “structural” RTL-type description utilized in the ‘435
 13 patent therefore is not “architecture independent.”” CC Reply Brief at 8:17-20.

14 A comparison of the quotes from Ricoh’s Opposition with the quotes from Ricoh’s Claim
 15 Construction briefs reveals that there is no question that what they argue in this Opposition are the
 16 same exact LEGAL arguments they raised in their Claim Construction briefs. Indeed the only
 17 additions are reliance on an AMI document, which is extrinsic evidence, and in any event not
 18 relevant,⁴ and more significantly, on Dr. Papaefthymiou’s Declaration⁵ – which simply reiterates,
 19 almost verbatim, Ricoh’s arguments.⁶ See Papaefthymiou Declaration at ¶¶5, 7, 13. Ricoh’s efforts to
 20 suggest that there is some factual issue were entirely disingenuous and reliant on the assumptions that
 21 the Court would allow them to reargue claim construction and that this time their arguments would
 22 prevail whereas they had failed before: Ricoh’s arguments can be rejected on this basis alone.

23 ⁴ Ricoh acknowledges that “structural RTL” as used in this document is a special meaning related to replacing specific
 24 hardware cells in an already mapped netlist which has already been placed and routed, and is therefore irrelevant. Opp. at
 25 18.

26 ⁵ Ricoh’s reliance on the Darringer thesis does not transform the issues raised from claim construction issues to factual
 27 issue. Ricoh has long known of the Darringer’s patent’s citation to the thesis, but never raised it before now. In any event,
 28 the single line that Dr. Papaefthymiou points to in the thesis does not change the definition of RTL, but instead the thesis
 defines RTL consistently with the patent.

⁶ Ricoh’s reliance on Dr. Papaefthymiou to rehash these arguments is astounding, given the vigor with which Ricoh
 objected to any extrinsic evidence in the context of the claim construction proceedings. Moreover, Dr. Papefthymiou’s
 deposition transcript – and the Darringer reference itself -- demonstrate the totally disingenuous nature of his unequivocal
 claims about a simple translation. An expert’s opinions must be supported by the evidence. See *General Elec. Co. v.*
Joiner, 522 U.S. 136, 146 (1997) (expert’s opinion excluded where there is too great an analytical gap between the data
 studied and the opinion proffered). Self-serving declarations that are uncorroborated and contradicted by other evidence do
 not create genuine issues of material fact. See *Johnson v. Washington Metropolitan Area Transit Authority*, 883 F.2d 125,
 128 (D.C. Cir. 1989); *Villiarimo v. Aloha Island Air, Inc.*, 281 F.3d 1054, 1061 (9th Cir. 2001).

1 Indeed, the Court already rejected each and every argument Ricoh makes with regard to this
 2 alleged “factual dispute.”⁷ In its Claim Construction Order, the Court fully addressed all the issues
 3 Ricoh raises. The Court first reiterated Ricoh’s argument “Rico responds that the patentee’s use of
 4 the term ‘register transfer level’ was merely a shorthand reference used to denote the “structural” RTL-
 5 type, as opposed to the “functional” RTL-type, of input systems prevalent at the time.” Claim
 6 Construction Order at 11:28-12:3. The Court then went on to address and reject the arguments raised
 7 above as follows:

8 In order to make this determination, the Court must examine the Darringer 4,704,435
 9 Patent (“the ‘435 patent”) and how closely it reads on the present invention. The ‘435
 10 patent specifically defines a register-transfer level description and the subsequent
 translation or transformation steps do not alter this express definition.⁷ ‘435 Col. 5:27-38.
 CC Order at 12:4-7 [Footnote from original]

11 The passage cited in the explicit definition footnote includes the line that reads: “At step 102 in Fig. 2,
 12 the register-transfer level description undergoes a simple translation to an initial implementation of
 13 AND/OR logic.” However, from the context, it is exceedingly clear that the Court is saying, in its
 14 order, that the described subsequent translation or transformation steps do not alter the express
 15 definition of register-transfer level already set forth. Indeed, this sentence starts with “[t]he register
 16 level description,” obviously referring to the register-transfer level description described on the
 17 preceding lines.

18 The Court’s Order continues, as follows:

19 The Court finds no relevant distinction between the RTL described in the ‘435 patent and
 20 the RTL specifically disclaimed by in the April and November 1989 Amendments.
 21 Furthermore, an examination of the ‘432 patent’s public record fails to provide any support
 for Ricoh’s distinction between “structural” and “functional” RTL-type input systems.
 22 Given these findings, Ricoh’s attempts to limit the patentee’s disclaimer to only
 “structural” level RTL-type input systems is unpersuasive. *See Kumar v. Ovaonic Battery*
 23 *Co., Inc.* 351 F.3d 1364, 1368 (Fed. Cir. 2003) (adopting definition of term Opposition at
 24 d in prior art which is intrinsic evidence). Accordingly, the prosecution history indicates
 that the patentee expressly disclaimed *all register transfer-level descriptions*. CC Order at
 12:7-15 (emphasis added).

25 7

1 There is no ambiguity in this Order. The Court clearly determined that patentee disclaimed all
 2 register-transfer level descriptions, and separately, has definitely rejected the precise arguments Ricoh
 3 has re-cast here as alleged “factual” arguments.⁸ Resolution of this Motion should begin and end here
 4 as there is no dispute that the Customer Defendant inputs are RTL.

5 **B. Resolution of Alleged Factual Issue No. 1 Resolved Alleged Factual Issue Number**
 6 **2**

7 Resolution of this first issue is determinative of factual issue No. 2. Indeed, reaching the
 8 second alleged factual issue depends on the ignoring the Court’s Claim Construction on the first issue.
 9 Indeed, Ricoh asserts in Issue No. 2 that accused inputs are not those taught in the Darringer patent
 10 exclusively on the basis of the claim construction it asserted and lost at the claim construction hearing.

11 Ricoh attempts to create confusion by suggesting in footnote 17 that there is a separate issue
 12 about whether or not latches are specified in the Customer Defendant inputs. This issue too, however,
 13 simply comes down to the already decided claim construction. Specifically, Ricoh’s theory here
 14 (reiterated in alleged factual issue No. 5) depends on the Court agreeing that Darringer RTL excludes
 15 inferring elements of the circuit from specified inputs. Indeed, both Ricoh’s argument (Opposition at
 16 14, fn.17) and Dr. Soderman’s opinion (at ¶53) begin by saying: “[i]nference” or “inferring” includes
 17 the use of higher order functional descriptions (rather than structural descriptions).” Thus, Ricoh’s
 18 argument about inferring is identical to its arguments about arithmetic operators (such as +) – the
 19 “always” statement in an input that infers a register is a “higher level” and “not structural” input and
 20 thus is precluded from being Darringer RTL. For the reasons set forth above, the Court has already
 21 rejected this argument. It should be rejected for the additional reason that this inference does not occur
 22 by virtue of some magical event purely inherent in the software, but rather, specific code to infer a
 23 register is included by the designer in the input. A hardware designer must specify input
 24

25 ⁸ Ricoh’s only mention of anything relating to the Court’s order is as follows: “Rico understands that the Court’s claim
 26 construction analysis states that it did not find a distinction between “structural RTL” and “functional RTL,” because the
 27 Court could not determine what if any meaning those terms had; however, it was clear that Ricoh had disclaimed the
 28 Darringer RTL input.” Nothing in the Court’ order suggests that the Court could not determine what if any meaning the
 terms “structural RTL” or “functional RTL” had. Instead, the Court clearly digested and responded to each of Ricoh’s
 arguments, and rejected them in its holding that the patentee disclaimed all RTL descriptions.

1 corresponding to registers. Indeed, Dr. Soderman testified that the input “always@posclkedge” infers
 2 (specifies) a flip-flop, which serves as a register or memory device. Soderman Tr. at 79:9-80:13;
 3 51:18-21.

4 Moreover, creating RTL inputs that specify registers requires that the user have specialized
 5 knowledge regarding VLSI circuit design. Indeed, Dr. Soderman filed a patent application in 1997
 6 directed to system for converting high-level programming language into a “register transfer level
 7 (RTL) hardware description language hardware description language that can be synthesized into a
 8 gate level hardware representation.” De Mory Decl., Ex. 9 at 4:12-14.⁹ Dr. Soderman’s patent
 9 indicates that there is a need for such a system because “HDLs are specific computer aided design
 10 tools for hardware designers Id. at 1:52-53. The patent goes on to describe the difficulty of using
 11 such HDLs. *Id.* Verilog and VHDL are included in the list of the HDLs discussed in the patent. *Id.*

12 **C. Factual Issue Number 3 Is A Ricoh Straw man**

13 Ricoh’s alleged factual issue number 3 is “Whether defendants use of the term ‘RTL’ to
 14 describe their inputs means that their inputs are excluded from the scope of the ‘432 patent is a straw
 15 man argument” As the Court is well aware from Defendants’ opening papers, Defendants do much
 16 more than claim that use of the term “RTL” means that their inputs do not infringe
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23 ⁹ Ricoh claims that Defendants have not provided or cited to the Soderman papers and patent or explained the significance
 24 of these documents. Both statements are false. Defendants have provided Ricoh with information about the patent
 25 application and articles. They are Exhibits 17-20 to the August 18, 2006 De Mory Declaration. Exhibit 17 is U.S. Patent
 26 No. 6,226,776, entitled “System for Converting Hardware Designs in High-Level Programming Language to Hardware
 27 Implementations.” Exhibit 18 is a 1998 On-Chip System Design Conference article by Donald Soderman, et al, entitled
 28 “Implementing ‘C’ Designs in Hardware: A Full-Featured ANSI C to RTL Verilog Compiler in Action.” Exhibit 19 is a
 1998 IEEE article by Donald Soderman and Yuri Panchul entitled “Implementing C Designs in Hardware: A Full-Featured
 ANSI C to RTL Verilog Compiler in Action.” Exhibit 20 is a 1998 IEEE article by Donald Soderman and Yuri Panchul
 entitled “Implementing C Algorithms in Reconfigurable Hardware using C2Verilog.” Defendants have also explained the
 inconsistencies in these papers and the patent with the position Ricoh takes here. Opening RTL Brief at pg. 10 fn. 6.

1 Because the inputs do and must include this information as defined in Darringer, Defendants
2 contend that their input is RTL.

3 The documents cited in Defendants brief simply corroborate this fact, as well as confirm
4 Ricoh's knowledge of it. Moreover, the documents do not, as Ricoh argues and Dr. Papaefthymiou
5 opines, support the argument that RTL is subject to various interpretations.

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9 Instead, at best, the
10 documents evidence that from time to time, different adjectives – all referring to the same inputs with
11 the same characteristics as Darringer and the Customer Defendants designs – are sometimes used with
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16 Indeed, most of the excerpts that Ricoh has selected to include in its brief consistently describe
17 RTL, as the name implies, as specifying registers, and specifying the functions between the registers,
18 and the clock. (The remainder are silent on the details, but are not inconsistent).

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26 ¹⁰ Ricoh's reliance on Mr. Andelman's e-mail is a sign of desperation. The reference to "define RTL" in Mr. Andelman's
27 e-mail related solely to whether or not it made sense, in the context of third party subpoenas, to try to arbitrarily define RTL
28 to encompass all documents that related to the Court's definition of "architecture independent." The goal of arbitrarily
redefining RTL was to make sure that the responses to the subpoena's to the universities at which Dr. Papaefthymiou has
taught would capture all potentially impeaching documents. See Docket No. 603.

In each case, these witnesses are clear – RTL implies a set architecture and set structure of the circuit.¹¹

Ricoh then goes on to argue the context of the Darringer and '432 patents – again. Opposition at 19-20. This repeated argument once again changes nothing. Ricoh also goes on to make an unsupported or supportable argument that “As used today, some engineers use the label “RTL” very broadly to encompass any input description written in an HDL language.” There is absolutely no evidentiary support for this proposition as evidenced by the lack of a single citation in this section of Ricoh’s brief. Opposition at 20.

Finally, Ricoh claims that Dr. Soderman did not admit that Defendants’ inputs are “Darringer RTL.”

Brothers Decl., Ex. 32 (Soderman) at 77:21-78:1, 108:2-9, 80:1-13, 89:14-90:5. This is a description of RTL.

There are no factual disputes raised in this section.

D. Ricoh’s Alleged Factual Dispute 5 Is A Red-Herring That Synopsys Believed Ricoh Had Abandoned Long Ago

In its introduction in the Opposition, Ricoh claims a fourth factual dispute, “Whether the accused inputs, even if not Darringer RTL, are architecture independent.” Ricoh claims that the alleged factual dispute is whether the accused inputs are Darringer RTL and are architecture

¹¹ Indeed, there is also no dispute that Design Compiler would not work for purposes of design an ASIC if this information is not specified. If one input just a “+” or a “-” or even $C=A+B$, into Design Compiler, without also including the information required in the RTL definition, no output would result. Indeed, as Dr. Casavant explained, Design Compiler counts on the timing behavior of the input as specified by the RTL to match the timing behavior of the output.

1 independent, and asserts that the accused inputs are not hardware architecture dependent. Ricoh,
 2 however, appears to have abandoned this argument. In any event, as described below, the inputs are
 3 architecture dependent.

4 With regard to alleged factual dispute No. 5, if the Court finds the inputs are RTL, which the
 5 patentee excluded from its patent scope, then the Court need not even reach this issue (and in fact has
 6 decided this issue because RTL implies a set architecture). Even if the Court reaches this issue – it is a
 7 red herring. In some Synopsys documentation, such as the single supporting document cited in
 8 Ricoh's brief, a 1997 DesignWare technical bulletin, implementation, meaning a particular type of cell,
 9 such as a ripple carry adder or a carry look ahead adder, are referred to as "architectures." That
 10 implementations are sometimes called architectures has nothing to do with whether or not the inputs
 11 specify the architecture of a portion of a circuit or circuit segment. There is no evidence that supports
 12 how or why this use of the term as representing an implementation shows that the inputs are
 13 architecture independent. Indeed, Dr. Soderman's declaration is the only cited support for this
 14 proposition, but it also explicitly depends on the notion that "inferring" "includes the use of higher
 15 order functional descriptions (rather than structural descriptions) that Design Compiler ultimately maps
 16 to implementations or architectures." Soderman Declaration at ¶53.

17 **E. Ricoh's Arguments Are Inconsistent And Inconsistent With The '432 Patent**

18 The arguments Ricoh makes here and sworn statements Ricoh makes in response to Motion
 19 No. 2, albeit wrong for reasons not significant here, are inconsistent with each other in a manner that is
 20 significant to this Motion. In particular, in support of its argument that "hardware cells" can be
 21 primitives, Ricoh argues that the cell library in the preferred embodiment is described as containing,
 22 among other things, "functional level information: description of the cell at the RTL level." In an
 23 attempt to push the square peg of Design Compiler into the '432 round hole, Ricoh asserts that this
 24 element is met by the Customer Defendant Technology Libraries. Ricoh's example is an "OR gate
 25 (OR2)." Ricoh claims the this "functional RTL level" description of the OR2 cell is met by the
 26 functional description (A+B). What Ricoh fails to tell the Court in its brief, however, is that the + in
 27 this description is an OR, not something signifying addition. Dr. Soderman, however, confirms this.
 28 In footnote 2 to his declaration he states, "As used in this functional description, the "+" represents the

1 Boolean operation OR rather than the arithmetic operation of addition.” Soderman at ¶26, fn. 2.
 2 Under no circumstances can Ricoh reconcile this sworn testimony and the arguments here that, for
 3 purposes of infringing the hardware cell element a Boolean OR is a functional RTL description, but
 4 that a Boolean OR in the input to Darringer is unequivocally not functional – but is instead structural
 5 RTL!

6 Similarly, in Opposition to Motion 2, Ricoh argues that a “hardware cell” can be a primitive
 7 based on Dr. Soderman’s sworn testimony that the Negate(A) macro, described as $A = \text{NOT}(A)$, would
 8 be implemented by one of ordinary skill in the art using a primitive cell such as a one input NAND
 9 gate. Soderman Decl. at ¶28. NOT, however, is included in the list of Darringer inputs that Dr.
 10 Papaefthymiou, and now Dr. Soderman, opines simply undergoes a “simple translation to AND/OR
 11 gates” and thus *cannot be an architecture independent input*. Indeed NOT in an input, according to
 12 Dr. Papaefthymiou, specifies structure! Given that NOT is included in the definitions of architecture
 13 independent actions and conditions, it is clear that the inventors did not mean to exclude inputs that
 14 just require “simple translation.”

15 Moreover, NOT is not alone in the common list of actions and conditions described in both the
 16 Darringer patent and the ‘432 definitions of architecture independent actions and conditions. In
 17 addition to NOT, Darringer input includes DECODE; there is a DECODE macro in the ‘432 patent. In
 18 addition to NOT and DECODE, the ‘432 includes a CMP(A,B) operator, one output of which is
 19 whether the inputs are equal. Also, both the macros in ‘432 patent and the ;435 patent include
 20 comparisons to zero; the ‘432 patent has the CMP0 macro, and Figure 4 of the ‘435 patent shows a
 21 comparison to zero. This commonality directly and unequivocally undermines Dr. Papaefthymiou’s
 22 theory about the “meaning of architecture independent.” It would mean that many of the macros (and
 23 in fact more than just the explicitly common macros) are really *definitions of architecture dependent*
 24 *actions and conditions* – not definitions of architecture independent actions and conditions.¹²

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 26 ¹² Indeed, when asked whether the decode as input to Darringer denoted a “specific structure or architecture, Dr.
 27 Papaefthymiou testified that decode “implies the output in the way that it only performs a simple transformation to take it
 28 from one to the other, “So, yes, decode is really a structural description. It’s a very simple element. Are we speaking with
 respect to add or multiply? It’s a very simple element. Once you have decodes, you’re really giving structure and
 description for all practical purposes. You do a simple transformation and basically end up with a structural element as a

(Continued...)

1 **III. CONCLUSION**

2 For the foregoing reasons, Synopsys requests that declaratory judgment be entered in its favor
3 that the Design Compiler system is not capable of infringing the '432 patent and the Customer
4 Defendants request that judgment of noninfringement be entered.

5 Dated: September 9, 2006

Respectfully submitted,

6 HOWREY LLP

7
8 By: /s/Denise M. De Mory

9 Denise M. De Mory

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11 and for Defendants AEROFLEX INCORPORATED,
12 AMI SEMICONDUCTOR, INC., MATROX
13 ELECTRONIC SYSTEMS, LTD., MATROX
14 GRAPHICS, INC., MATROX INTERNATIONAL
15 CORP., MATROX TECH, INC., and
16 AEROFLEX COLORADO SPRINGS, INC.

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26 (...Continued)

27 result of that." Papaefthymiou Tr. at 91:6-23. Thus, according to Dr. Papaefthymiou, the DECODE macro in the
28 specification is a definition of an architecture dependent action and condition, as are many of the others.